



Kirtland Air Force Base

A guide to understanding
drinking water supplied to
you in...

**Annual Consumer
Confidence Report on
Drinking Water Quality**

June 2007

2007



Where does Kirtland AFB's drinking water come from?

The drinking water delivered to you is pumped from a groundwater source known as the Albuquerque Basin Regional Aquifer from the Santa Fe Formation. Kirtland AFB is capable of drawing its water from five different wells within the Albuquerque Basin Regional Aquifer.

In 2006, a total of 920,000,000 gallons of water were pumped from these wells. The water from the wells is mixed, chlorinated, stored, and distributed. Chlorination is the treatment process utilized to prevent bacteria from growing while the water is stored and distributed through the system.

Additionally, water pumped and treated by the City of Albuquerque can be distributed throughout the base during high water demands or during alternate water supply needs. A total of 276,000 gallons of water were purchased from the City of Albuquerque in 2006, which is 0.03% of drinking water supplied to Kirtland AFB customers in 2006. The City of Albuquerque's Consumer Confidence Report is attached for your convenience. You can also access the report on the City's website at www.cabq.gov/waterquality.

Kirtland AFB's Source Water Protection

Through the 1996 reauthorization of the Safe Drinking Water Act (SDWA), Congress authorized the Environmental Protection Agency (EPA) to require each state to develop and implement a Source Water Assessment and Protection Program. The New Mexico Source Water Assessment and Protection Program is part of a national effort to gather information on public drinking water source areas and to inform water consumers about any risks to their water supply posed by potential sources of contamination.

The Source Water Assessments of public water systems throughout New Mexico include the following four basic steps:

1. Determining the source water protection area for the community's water system;
2. Taking inventory of potential contaminant sources within the source water protection area;
3. Determining the susceptibility of the water supply to potential sources of contamination; and
4. Making the assessment available to the public.

During 2002, the New Mexico Environment Department – Drinking Water Bureau (NMED-DWB) conducted site visits, collected information on Kirtland AFB's production wells, and identified materials used or stored in the areas around Kirtland AFB wells that could be potential contaminants. As part of the assessment, wells are ranked on a susceptibility scale (see definition below). The susceptibilities of Kirtland AFB wells range from moderate to moderately high. These rankings are largely influenced by the presence of possible contaminants that exist on an active Air Force installation as part of normal operations (i.e., vulnerability). However, the characteristics of the water supply wells themselves (i.e., sensitivity) are all moderately low to moderate, meaning the wells are not likely to become contaminated.

The Kirtland AFB Environmental Management Branch manages a comprehensive program to ensure that base facilities comply with environmental laws and regulations. The program includes air, water, petroleum storage tank, hazardous material/waste, and solid waste compliance activities, as well as site investigation and restoration activities. Even though potential sources of contaminants exist around Kirtland AFB water supply wells, these potential sources of contamination are closely managed and monitored under the Kirtland AFB Environmental Management Program.

The NMED-DWB evaluation is presented in an August 21, 2002 report titled, "Source Water Assessment of Kirtland Air Force Base Water System – Public Water Supply System #NM 35 677 01." The 2002 report remained applicable to the Kirtland AFB water supply system in 2006.

The SDWA requires the results of the source water assessment to be available to water consumers. To meet this requirement, NMED-DWB will provide copies of this report to the public upon request. To obtain a copy of the Kirtland AFB Source Water Assessment, contact the NMED-DWB in Santa Fe, New Mexico, toll free at 877-654-8720 or e-mail the Bureau at SWAPP@nmenv.state.nm.us. Copies of this report also are available to consumers who contact the Kirtland AFB Environmental Management office at 505-846-8577.

Definition: Source Water Susceptibility

A water system's susceptibility is a combination of 1) the sensitivity of the water source to contamination due to characteristics of the source area and of the wells, and 2) the vulnerability of the water source to contamination due to prevalence and proximity of possible contaminants in the areas around the wells. As a result of industrial operations and materials in a well area, the well's vulnerability may be somewhat higher.



Health Information

To ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of contaminants. The presence of contaminants does not necessarily indicate the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the **EPA's Safe Drinking Water Hotline at 800-426-4791** or going to its website: **www.epa.gov/safewater**.

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land through the ground, it can dissolve many natural minerals and, especially in the case of groundwater, radioactive material. Water is also subject to contaminants resulting from the presence of animals or human activity. The wide variety of contaminants that may be present in source water includes:

- Microbial contamination such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production. Organic chemical contaminants also can come from urban stormwater runoff and septic systems.
- Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-

compromised persons, such as persons with cancer, persons undergoing chemotherapy, persons who have had organ transplants, people with HIV/AIDS or other immune system disorders, the elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the **Safe Drinking Water Hotline at 800-426-4791**.

Information on Arsenic, Lead, Copper, and Fluoride

Kirtland AFB water does not exceed regulatory levels for arsenic, lead, copper, or fluoride. However, consumers often inquire about these compounds so some information is provided below.

While your drinking water meets EPA's standard for arsenic, it does contain low levels. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low-level arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Lead and copper rarely occur naturally in drinking water at levels above national standards. Too much lead in the human body can cause negative health effects including serious damage to the brain, kidneys, nervous system, and red blood cells. Long-term exposure to high levels of copper can result in stomach and intestinal problems. Young children and infants tend to be more sensitive to high levels of these compounds. Lead and copper are most commonly found in household drinking water when the plumbing system has corroded. This is not usually a concern in older homes (built before 1982) because a protective mineral layer has built up inside the pipes. A significant source of lead in household water is from lead solder used to join pipes. The use of lead solder was discontinued in New Mexico in 1987. Kirtland AFB sampling for lead and copper have not indicated levels exceeding the applicable maximum contaminant levels (MCLs).

Kirtland AFB had to re-evaluate sampling location options for lead and copper because the individual residences at the Zia Park housing were demolished and the Maxwell housing area underwent remodeling. Lead and copper sampling was not conducted at the Zia Park in 2006 due to demolition. The Maxwell housing area has



been selected for future lead and copper sampling locations. It is anticipated that sampling at the Maxwell housing area will occur between July and September 2007.

Kirtland AFB does not fluoridate its drinking water. The average naturally occurring fluoride levels at Kirtland AFB range from approximately 0.3-0.7 ppm. The Centers for Disease Control recommends that children 3-16 years of age who drink community water with fluoride levels between 0.3 ppm and 0.6 ppm receive fluoride supplements. If you have questions about whether you or your dependents may need fluoride supplements, you should call your Pediatric Clinic.

Water System Improvements

Kirtland AFB made changes to its water distribution system. During 2006, a new 2-million-gallon blending tank was connected to the water distribution system to combine groundwater pumped from the five wells within the Albuquerque Basin Regional Aquifer. A series of infrastructure and operational changes was made to the water distribution system to blend groundwater. This blending of groundwater will assist in the long-term solution of maintaining compliance with the new arsenic MCL of 10 ppb. Kirtland AFB is in compliance with the drinking water standard for arsenic.

Base Housing

In May 2006, City of Albuquerque (COA) began providing drinking water and assumed most maintenance responsibilities of the potable water distribution system within the newly built base housing areas constructed during 2004-2006. Maxwell is the only housing site that will continue to receive drinking water, monitoring, reporting (ie: CCR) and maintenance services from Kirtland AFB. Beginning 2008, base housing areas that receive drinking water from COA will no longer receive Kirtland AFB CCRs. For more information on water provided to base housing by the COA, call the **COA Water Quality Information Line at 505-857-8260** or go to its website: **www.cabq.gov/waterquality**. For emergency water system repairs, call the 24-hour **COA Emergency Repair Hotline at 505-857-8250**.

EPA Rules Underway

In 2006, EPA proposed three new rules under the SDWA that

will impact the Kirtland AFB community water system. More information regarding the proposed rules can be found by going on the EPA SDWA website. Below is a list of the EPA rules and where you can find more information on each proposed rule:

- The Stage 2 Disinfectants and Disinfection Byproducts Rule addresses disinfection byproducts to improve drinking water quality and provides additional public health protection from disinfection byproducts.
www.epa.gov/safewater/disinfection/stage2
- The Groundwater Rule establishes a risk-based approach to target groundwater systems that are vulnerable to fecal contamination.
www.epa.gov/safewater/disinfection/gwr
- The Unregulated Contaminant Monitoring Rule is used by EPA to collect data for contaminants suspected to be present in drinking water, but that do not have health-based standards set under the SDWA.

www.epa.gov/safewater/ucmr/ucmr2

Water Quality Table of Detected Compounds

Kirtland AFB staff uses EPA-approved sampling and laboratory methods to monitor your drinking water. Bioenvironmental Engineering staff collect water samples from the entry points into the water distribution system, from residents' taps, and from other representative points throughout the distribution system. These samples are provided to a certified laboratory where all of the required water quality analyses are performed.

The table below provides information about those contaminants that were detected in Kirtland AFB's water supply in 2006. The table lists only those compounds that were detected at levels equal to or greater than laboratory method detection limits (MDLs). All detected compounds were at concentrations below the MCL. Many other compounds were analyzed in 2006 but were not present or were below the detection limits of the laboratory equipment.



REGULATED CONTAMINANTS	Unit	MCL (or AL)	MCLG	Level Detected	Range	Sample Dates	Violation (Exceeded MCL)	Likely Source of Contaminant
Inorganic Contaminants								
Arsenic	ppb	10	0	6.8	6.8 ⁽¹⁾	2006	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	ppm	2	2	0.103	0.103 ⁽²⁾	2006	No	Erosion of natural deposits
Chlorine	ppm	4.0 = MRDL	4.0 = MRDLG	1.21 ⁽³⁾	0.29 – 1.55	2006	No	Drinking water disinfectant
Copper	ppm	1.3 = AL	1.3	0.0087	0.0087 ⁽²⁾	2006	No	Corrosion of household plumbing systems
Chromium (total)	ppm	0.1	0.1	0.0012	0.0012 ⁽²⁾	2006	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Fluoride	ppm	4.0	4.0	0.275	0.275 ⁽²⁾	2006	No	Erosion of natural deposits
Lead	ppb	15 = AL	0	0.001	0.001 ⁽²⁾	2006	No	Corrosion of household plumbing systems
Nitrate, as N	ppm	10	10	0.485	0.485 ⁽²⁾	2006	No	Runoff from fertilizer use or sewage
Sodium	ppm	NA ⁽⁴⁾	NA ⁽⁴⁾	22.4	22.4 ⁽²⁾	2006	No	Erosion of natural deposits
Radionuclide Contaminants								
Gross Alpha Particle Activity	pCi/L	15	0	1.41 ⁽³⁾	ND – 1.41	2006	No	Erosion of natural deposits
Gross Beta Particles and Photon Emitters	pCi/L	50 ⁽⁵⁾	0	3.95 ⁽³⁾	2.94 – 4.56	2006	No	Decay of natural and manmade deposits
Radium 226 and Radium 228 (combined)	pCi/L	5	0	0.48 ⁽³⁾	ND – 0.76	2006	No	Erosion of natural deposits
Uranium	ppb	30	0	2.6 ⁽³⁾	ND – 2.6	2006	No	Erosion of natural deposits
Volatile Organic Contaminants								
Total Trihalomethanes (TTHMs)	ppb	80	NA ⁽⁶⁾	2.95 ⁽³⁾	0.065 – 2.5	2006	No	Byproduct of drinking water disinfection
Total Haloacetic Acids (HAA5)	ppb	60	NA ⁽⁶⁾	7.4 ⁽³⁾	ND – 7.4	2006	No	Byproduct of drinking water disinfection

KEYS TO TABLE DEFINITIONS

AL	Action Level. The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a system must follow.	MRDLG	Maximum residual disinfection level goal. The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MCLG	Maximum Contaminant Level Goal. The level of contaminant of drinking water below which there is no known or expected risk to health. MCLGs have a built-in margin of safety.	ND	Not Detected. The element is not present at a level above the detection limit of laboratory instruments.
MCL	Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are as close as possible to the MCLG.	pCi/L	Picocuries per liter. A measure of radioactivity in water.
MDL	Method Detection Level. The lowest concentration of a contaminant that can be detected using the required EPA sampling and analysis methods. An MDL is specific to each contaminant and type of analysis performed.	ppb	Parts per billion. A unit of measure equivalent to a single penny in \$10,000,000.
MRDL	Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.	ppm	Parts per million. A unit of measure equivalent to a single penny in \$10,000.
		Range	The range represents the actual detected concentrations of a contaminant from the lowest to the highest reported analytical values reported during the sampling period.

TABLE NOTES

- (1) This represents the test results from two quarters, the value used for compliance reporting.
- (2) This represents the test results from one quarter, the value used for compliance reporting.
- (3) This represents the annual average of four quarterly test results, the value used for compliance reporting.
- (4) Not applicable. The EPA does not have an MCL or MCLG.
- (5) The EPA considers 50 pCi/L to be the level of concern for beta particles.
- (6) Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants that make up the contaminant group. The lowest individual MCLG within the group is zero.

Dear Valued Drinking Water Customer:

Kirtland Air Force Base (AFB) is pleased to present the annual summary of your drinking water quality. This report is designed to help you better understand and have confidence in your drinking water supply. Kirtland AFB is fortunate to have an excellent groundwater source and to have the distribution system monitored and maintained in top operating condition.

Within this report, you will find health information that relates to contaminants for which we test, in accordance with state and federal regulations. A table is also included to show the specific contaminants that have been detected in Kirtland AFB's drinking water. In 2006, there were no contaminants detected in your drinking water that exceeded the maximum contaminant level or that were at levels of concern.

Please be aware of the efforts continually made by Kirtland AFB staff members to maintain the high quality of drinking water by improving the treatment process and protecting the groundwater source. Kirtland AFB is committed to supplying you with the best quality of drinking water possible.




ROBERT E. SUMINSBY, Jr., Colonel, USAF
377th Air Base Wing Commander

We are pleased to present you with the Consumer Confidence Report (CCR) for 2006. This is the annual report on the quality of water delivered by Kirtland Air Force Base during calendar year 2006. Under the "Consumer Confidence Reporting Rule" of the federal Safe Drinking Water Act (SDWA), community water systems are required to report water quality information to the consuming public. As required by regulations, results reported in 2007 are based upon samples collected and analyzed in 2006.

This report details where our water comes from, what it contains, and the health risks our water testing and treatment are designed to prevent.

Members of Bioenvironmental Engineering, Civil Engineering, Environmental Management, Office of the Judge Advocate and Public Affairs, along with CH2M HILL, prepared this Annual Water Quality Report.

Please feel free to contact Bioenvironmental Engineering at 505-846-4259 with questions on this report or water quality at Kirtland AFB. The Kirtland AFB CCR can be found on the internet at www.kirtland.af.mil.

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